



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ryosaku Inamura et al.
Serial No.: 10/718,202
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For: MAGNETIC RECORDING
MEDIUM...
Art Unit: 2627
Examiner: Miller, Brian E.

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September 20, 2007

Date

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APPELLANT'S REPLY TO EXAMINER'S ANSWER UNDER 37 C.F.R. 41.41

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CLARIFICATION OF
STATUS OF AMENDMENTS AFTER FINAL

In order to avoid any potential confusion, Applicants would like to point out that the after-final amendment (Amendment D) referred to on page 2 (line 12) of the Examiner's Answer was filed on March 15, 2007, and Applicants believe that it was received at the United States Patent & Trademark Office on March 19, 2007 (and not on April 2, 2007, as mentioned in the Examiner's Answer).

REBUTTAL TO EXAMINER'S
RESPONSE TO APPLICANTS' ARGUMENT

On page 4 (lines 13-19) of the Examiner's Answer, the Examiner asserts that Applicants' argument that "One of ordinary skill in the art would not have modified the back layer of Akiyama et al. in light of the ferrimagnetism layer of JP '814 because the relevant layer of Akiyama et al. has in-plane magnetism while the relevant layer of JP '814 has perpendicular magnetism" is misdirected because the Examiner has not relied upon JP '814 to modify the magnetization of the backing layer of Akiyama et al., but only to modify the material of the backing layer.

In response, Applicants assert that Applicants understand that the Examiner is only relying upon the material from JP '814, and not its magnetization properties. However, Applicants respectfully submit that such reliance on one aspect of a component of a prior art reference, without considering the context of that component and other properties of that component, is an improper use of hindsight. In fact, such a rationale appears to be a classic example of impermissible hindsight in which the Examiner is "picking and choosing among isolated disclosures in the prior art" to arrive at the claimed invention. See In re Fritch, 972 F.2d 1260, 1267, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). In the instant case, the proposed combination results from picking only the material from layer 2 of JP '814, without also picking its magnetic properties, as well as failing to consider the magnetic interaction between layer 2 of JP '814 and adjacent magnetic recording layer 3.

More specifically, the ferrimagnetic layer 2 of JP '814 has perpendicular magnetization (*see e.g.*, JP '814, English Language Constitution, lines 7-9), while the back layer 22 of Akiyama et al. has in-plane magnetization (*see e.g.*, Akiyama et al., col. 7, lines 7-10). Thus, the magnetization directions of layer 2 of JP '814 and layer 22 of Akiyama et al. are completely different.

As further evidence that the proposed combination is a result of picking and choosing among isolated disclosures in the prior art to arrive at the claimed invention, Applicants respectfully submit that the Examiner failed to consider the magnetic interactions between the relevant layers and the adjacent magnetic recording layer of both references when suggesting the proposed combination.

Specifically, the Akiyama et al. reference discloses that using in-plane magnetization for a back layer 22, in combination with a recording layer 23 of perpendicular magnetization, suppresses the generation of Barkhausen noise because shifting of the magnetic domain wall in layer 22 is suppressed. *See e.g.*, Akiyama et al., col. 3, lines 52-64; col. 7, lines 46-59. Thus, the in-plane magnetization of the back layer used in combination with perpendicular magnetization of the recording layer is an important aspect of the medium of Akiyama et al.

In contrast, JP '814 discloses that using perpendicular magnetization for layer 2, in combination with a recording layer 3 of perpendicular magnetization, improves the perpendicular magnetic anisotropy and allows for high density recording. *See* JP '814, English Language Constitution, lines 7-16. Thus, the use of a lower layer with perpendicular magnetization, in combination with perpendicular magnetization of

the recording layer, is clearly an important feature of JP '814. Further, JP '814 fails to teach anything regarding the interaction between a back layer with in-plane magnetization and a recording layer with perpendicular magnetization. Accordingly, Applicants respectfully submit that because JP '814 only teaches the benefits of the interaction between two layers that both have the same type of magnetization (perpendicular magnetization), Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to modify the back layer 22 of Akiyama et al., which has in-plane magnetization, and which is used in combination with a recording layer 3 that has a different type of magnetization (perpendicular magnetization), to include the material of JP '814, unless improper hindsight was used. Thus, for at least this reason, Applicants respectfully assert that this §103 rejection cannot be maintained.

On page 5 (lines 3-5) of the Examiner's Answer, the Examiner asserts that selecting in-plane or perpendicular magnetization is "easily chosen by the end user, at least through engineering design choice." In response, Applicants respectfully submit that such an assertion fails to provide a valid reason for substituting the material of layer 2 of JP '814 (with its compensation temperature feature) for the material of layer 22 of the Akiyama et al. reference. The recent Supreme Court Case of KSR International Co. v. Teleflex Inc. has stated that for a combination to be obvious, it is important to identify a reason for combining the elements to arrive at the claimed subject matter. 127 S.Ct. 1727, 1741, 82 U.S.P.Q.2d 1385, 1396 (2007). However, merely asserting that such a modification is a known design choice does not supply the required reason for modifying the Akiyama et al. reference in the manner suggested by the Examiner.

Further, other conclusory remarks in the Examiner's Answer also fail to provide the required reason for modifying the Akiyama et al. reference as well. For example, in the Examiner's Answer on page 3 (line 22) through page 4 (line 4), the Examiner states that "The motivation [for modifying Akiyama et al. in view of JP '814] would have been: lacking any unobvious or unexpected results, substituting one well-suited material for another similar material, would have resulted from at least routine engineering experimentation and/or optimization." However, there is no disclosure or suggestion in the cited references that the material of layer 2 of JP '814 (which is magnetized in the *perpendicular* direction and was chosen to interact with a recording layer that is magnetized in the *same* direction) is a well-suited substitution for the material of layer 22 of Akiyama et al. (which is magnetized in the *in-plane* direction and was chosen to interact with a recording layer that is magnetized in a *different* direction). Similarly, the assertion on page 5 (lines 1-3) of the Examiner's Answer ("It is the Examiner's position that a skilled artisan would have had the knowledge to select other known materials for the backing layer") also fails to show that the cited references provide the required reason for making the modification, as well as failing to consider the different magnetization directions and different magnetic interactions with adjacent layers. Thus, for these additional reasons, Applicants respectfully assert that this §103 rejection cannot be maintained.

Finally, on page 5 (lines 14-16) of the Examiner's Answer, the Examiner asserts that "The teachings of the cited prior art, at least as a whole, show that different magnetizations in the backing layer, and different materials, can both produce high

density perpendicular recordings." In response, Applicants respectfully submit that even when considering the prior art as a whole, there is still no teaching of using a material with perpendicular magnetization (such as the material of layer 2 of JP '814) and a particular beneficial magnetic interaction with an adjacent recording layer as a replacement for a material with in-plane magnetization (such as the material of layer 22 of Akiyama et al.) and a different particular beneficial magnetic interaction with an adjacent recording layer. In other words, the material of JP '814 has been shown to provide a beneficial magnetic interaction with an adjacent recording layer only when used in a layer with perpendicular magnetization; and the material of Akiyama et al. has been shown to provide a different beneficial magnetic interaction with an adjacent recording layer only when used in a layer with in-plane magnetization. However, there is no teaching that the material of JP '814 provides a beneficial magnetic interaction with an adjacent recording layer when used in a layer with in-plane magnetization, as in the Examiner's proposed combination of Akiyama et al. and JP '814.

Further, such a proposed modification of Akiyama et al. satisfies one of the inquiries for non-obviousness set forth by the Supreme Court in KSR International Co. v. Teleflex Inc., in which the Court states that "a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions." 127 S.Ct. 1727, 1740, 82 U.S.P.Q.2d 1385, 1396. In the present case, the improvement *is* more than the predictable use of prior art elements according to their established functions, so it should not be considered obvious under §103. More specifically, Applicants respectfully submit that using the material of layer 2 of JP '814

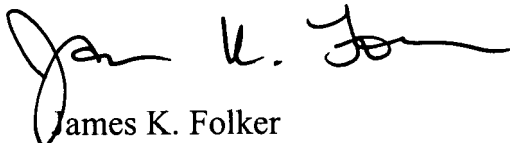
(with a particular compensation temperature) in the device of Akiyama et al. is not a predicable use of prior art elements because, *inter alia*, the prior art element of JP '814 is not being used for its established function of providing a beneficial magnetic interaction between itself and the adjacent magnetic recording layer with both layers having perpendicular magnetization. Instead, the Examiner is proposing using the material of JP '814 in the device of Akiyama et al. for a layer with in-plane magnetization, which is not an established function of the material of JP '814 because the magnetization configuration is different from that disclosed in JP '814, and accordingly, its disclosed magnetic interaction with a perpendicular magnetic recording layer would be different. Further, the cited references provide no prediction of how the material of layer 2 of JP '814 will interact with a perpendicular magnetic recording layer if its magnetization direction is changed from perpendicular to in-plane. Thus for these additional reasons, Applicants respectfully assert that this §103 rejection cannot be maintained.

CONCLUSION

For the reasons discussed above, as well as for the reasons discussed in Appellants' Brief, filed March 21, 2007, Applicants respectfully request that the Board of Patent Appeals and Interferences reverse the §103 rejection of Claims 1-4 under Akiyama et al. in view of JP '814.

Respectfully submitted,

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